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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,357	07/21/2003	Aaron Scott Lukas	06381P USA	7231

23543 7590 01/06/2006

AIR PRODUCTS AND CHEMICALS, INC.  
PATENT DEPARTMENT  
7201 HAMILTON BOULEVARD  
ALLENTOWN, PA 181951501

EXAMINER
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BLUM, DAVID S

ART UNIT	PAPER NUMBER
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2813

DATE MAILED: 01/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/624,357

**Applicant(s)**

LUKAS ET AL.

**Examiner**

David S. Blum

**Art Unit**

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 30 and 31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 30 and 31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/6/05; 12/14/05. 5/31/05</u> | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 2813

This action is in response to the RCE filed 12/14/05.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mandal (2002/0142585) in view of Waldfried ("Single Wafer Rapid Curing").

Regarding claim 30, Mandal discloses a mixture for depositing an organosilicate film comprising a dielectric constant of 3.5 or below, the mixture comprising at least one structure-former precursor selected from the group consisting of an organosilane and an organosiloxane (p.3 para.29, 32-33) and a pore-former precursor (p.4 para.36).

However, Mandal does not disclose said film exhibiting an absorbance of 200 to 400 nm wavelength. Mandal would look to one such as Waldfried for a porous low-k film because Waldfried discloses wherein it is implied that at least one precursor and/or the organosilicate film exhibits an absorbance in the 200 to 400 nm wavelength range (p.226 Exp. Para.1).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Mandel by using the absorbance of Waldfried with the mixture of Mandal. The mixture of Mandal provides improved low-k material properties, and reduced process times and process temperatures (Waldfried – Abstract).

Regarding claim 31, Mandal also discloses a mixture for depositing an organosilicate film, the mixture comprising: from 5 to 95% by weight of a structure-former precursor selected from the group consisting of an organosilane and an organosiloxane and from 5 to 95% by weight of a pore-former precursor (p.3 para.29, 32-33; p.4 para.36; p.5 para.44-46). ). However, Mandal does not disclose said film or precursor exhibiting an absorbance of 200 to 400 nm wavelength. Mandal would look to one such as Waldfried for a porous low-k film because Waldfried discloses wherein at least one of the precursors and/or the organosilicate film exhibits an absorbance in the 200 to 400 nm wavelength range (p.226 Exp. Para.1). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Mandel by using the absorbance of Waldfried with the mixture of Mandal. The mixture of Mandal provides improved low-k material properties, and reduced process times and process temperatures (Waldfried – Abstract).

***Response to Arguments***

3. Applicant's arguments filed 12/14/05 have been fully considered but they are not persuasive.

The applicant argues that the (prior) action fails to provide any reason why one of ordinary skill in the art having read Mandel and Waldfried would be motivated to modify the teachings in such a way as to obtain any compound or practice any method recited in the applicant's claimed invention. The examiner disagrees. A statement as to why one of ordinary skill in the art having read Mandel and Waldfried would be motivated to modify the teachings in such a way as to obtain any compound or practice any method recited in the applicant's claimed invention has been provided.

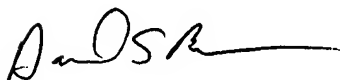
The applicant argues that Mandel teaches only a single molecule and not a mixture of two recited components. Although Mandel teaches an example of a single molecule, Mandel (paragraph 0012) teaches the film may be deposited from "one or more compounds comprising at least one oxidizable silicon containing component and at least one non-silicon containing component...". Thus the teaching is not a single molecule but a mixture of two (or more) components.

Art Unit: 2813

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Blum whose telephone number is (571)-272-1687) and e-mail address is David.blum@USPTO.gov .

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr., can be reached at (571)-272-1702. Our facsimile number all patent correspondence to be entered into an application is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David S. Blum

January 4, 2006